

# Work Order ID 52112

September 16, 2009 12:47:49 PM



Page 1

Item ID: D209-669-043  
Revision ID: B  
Item Name: Replacement Skidtube

Accept



Setup Start  
Stop



Start Date: 09/16/2009 Start Qty: 1.00  
Required Date: 09/30/2009 Req'd Qty: 1.00



Cust Item ID:  
Customer:

Reference:

Approvals: Process Plan: mf Date: 09-09-16 Tooling: \_\_\_\_\_ Date: \_\_\_\_\_  
QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Run Start  
Stop



Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Draw Number	Draw Rev.	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
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Draw Nbr	Revision Nbr
D2906	Rev B

100 0.00



DC

DOCUMENT CONTROL

Memo

0.00

Document Control

Photocopy D209-669 bluefile & type labels per PPP D205-669-043 Chg 002

N/A

110 0.00



Skidtubes

Skidtubes

Memo

0.00

Skidtubes

1- Inspect mat'l D2500-1-190 for damage

2-Cut D2500-1-190 per Dwg D2906 if necessaryDeburr ends

3-Acid etch and Alodine tube per QSI 005 4.1

09 09 17 ①

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
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**NOTE:** Date & initial all entries

**Work Order ID 52112**

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Item ID: D209-669-043

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Setup Start



Revision ID: B

Stop



Item Name: Replacement Skidtube

Start Date: 09/16/2009 Start Qty: 1.00



Cust Item ID:

Required Date: 09/30/2009 Req'd Qty: 1.00



Customer:

Reference:

Run Start



Approvals: Process Plan:

Date:

Tooling:

Date:

QC:

Date:

SPC (Y/N):

Date:

Stop

Sequence ID/  
Work Center IDOperation  
DescriptionSet Up/  
Run HoursDraw  
NumberDraw  
Rev.Plan  
CodeAccept  
QtyReject  
QtyReject  
NumberInsp.  
Stamp

120

QC3- Inspect Part Finish

0.00

QC

Memo

0.00

Quality Control

W/O:		WORK ORDER CHANGES					
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Run Start



QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Stop



Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Draw Number	Draw Rev.	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	----------------	--------------	--------------	---------------	---------------	------------------	----------------

130

0.00



Skidtubes

Skidtubes

Skidtubes

Memo

0.00

1-Drill pilot holes using drill jig DT8149, DT8711-2 & DT8711-3 (Do not use cutting fluid)

MB 09-09-21

2-Open holes to 0.500" as per Dwg D2906 without cutting fluid

3-Countersink holes as per Dwg D2906 without cutting fluid

4-Deburr and blow out all chips from inside of tube

5-Bond web in place per QSI 015. Allow 12 Hrs. cure time before cutting

Pick:

Qty ☐ Part Number ☐ Description ☐ Batch

A/R ☐ ☐ ☐ Sikaflex-291 ☐ H112391 ☐ ☐

Sikaflex expire date: 02/20/2010

Start Time: 3:45pm Date: 9-9-21

Fin Time: 8:30AM Date: 9-9-22

pick:

Qty	P/N	description
1	D2926-3	Web

B/N  
B52066

DP  
9-9-21

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

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QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Stop

Sequence ID/  
Work Center IDOperation  
DescriptionSet Up/  
Run HoursDraw  
NumberDraw  
Rev.Plan  
CodeAccept  
QtyReject  
QtyReject  
NumberInsp.  
Stamp

140

0.00



BENDING MACHINE - CROSSTUBES

CNC Bend 1


Memo

0.00

CNC Delta 100 Bender

1-Bend as per program COB43FWD &amp; COBRAFT on CNC Bender and Folio FT

2-Cut tubes as per Dwg. D2906 &amp; per template DT8185B &amp; DT8185BC

>  9-9-22

150

0.00



Skidtubes

Skidtubes

Memo

0.00

Skidtubes

1-Cut tube as per dwg and ensure ends are perpendicular to ridge

2-Deburr ends

3-Prepare tube for welding, remove alodine as required.

N/A ↑

MB 09-09-22

&gt;

160

0.00



QC5- Inspect part completeness to step on W/O

QC

Memo

0.00

Quality Control

&gt; 8/21/22

①

f

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Run Start

QC: Date: SPC (Y/N): Date:

Stop

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170

0.00



Large Fab

Skidtubes

Memo

0.00

Skidtubes

1-Weld crossbolt spacers D2579 as per Dwg. D2906 and QSI 004.  
For D2579 spacers, weld one side, pass 3/8" drill, weld other side, pass 3/8" drill  
A/R Aluminum Rod *mill 682*

2-Grind welds as per Dwg D2906 Grind flush ridge made from bending

3-Drill holes for wearplates using DT8217 Open holes to 19/64", adjust stopper not to hit web. Debur

4-Counterbore crossbolt spacers to 7/16" ID x 1.0" deep as per Dwg D2906, Debur holes

5-Drill pilot holes for aft &amp; fwd cap using DT8215 open holes to #6" Debur

6-Drill pilot holes for Tow ring using DT8091-3, open to .640" and Debur

*BE 09/09/23*  
*AWM 9-7-24*

*AWM 9-7-24*

180

QC10- Inspect visual per QSI004- ground welds

0.00



QC

Memo

0.00

Quality Control

*2) 502/02/25*

*(46) 6*

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Run Start

Stop

Sequence ID/  
Work Center IDOperation  
DescriptionSet Up/  
Run HoursDraw  
NumberDraw  
Rev.Plan  
CodeAccept  
QtyReject  
QtyReject  
NumberInsp.  
Stamp

190

QC5- Inspect part completeness to step on W/O

0.00

⇒ 500/02/05

QC

Memo

0.00

Quality Control

(X)

/

200

Pressure Wash per QSI005 4.3

0.00

⇒ JH 09/09/28

HandFinish

Memo

0.00

Hand Finishing

(X)

/

210

White Gloss(Ref:4.3.5.1) per QSI005 4.3-Alum

0.00

11/12260

JH 09/09/28

Powdercoat

Memo

0.00

Powder Coating

START TIME: 3:30pm  
OVEN TEMPERATURE: 320°C  
FINISH TIME: 4:00pm

(X)

/

W/O:		WORK ORDER CHANGES					
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Reference:

Approvals: Process Plan: Date: Tooling: Date:

QC: Date: SPC (Y/N): Date:

Run Start

Stop

Sequence ID/  
Work Center IDOperation  
DescriptionSet Up/  
Run HoursDraw  
NumberDraw  
Rev.Plan  
CodeAccept  
QtyReject  
QtyReject  
NumberInsp.  
Stamp

220

QC3- Inspect Part Finish

0.00



QC

Memo

0.00

27 80262/30

Quality Control

46

/

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

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Required Date: 09/30/2009 Req'd Qty: 1.00



Customer:

Reference:

Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_

Run Start



QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Stop



Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Draw Number	Draw Rev.	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
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230

0.00



HandFinishing

HandFinish

Memo

0.00

Hand Finishing

1-Install inserts &amp; wearplates as per Dwg. D2906. Use a drop of Sikaflex on insert holes before installing wearplates

A/R ☐ ☐ ☐ Sikaflex-291 ☐ m112391

Sikaflex expire date: 10/20

2-Coat D2594-3 O' rings with Petroieum Jelly and install on D2594-1 plugs as per Dwg D2906

3-Inspect for foreign object per QSI 024

4-Install D2855 Fwd &amp; Aft Cap as per Dwg D2906 and seal Fwd &amp; Aft Cap with Sikaflex. Clean excess adhesive

A/R ☐ ☐ ☐ Sikaflex-291 ☐ m112391

Sikaflex expire date: 10/20

5-Wing Walk as per Dwg D2906 and QSI 005 4.4

Batch: m112106

X1

mo 09/10/01

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

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Setup Start

Stop

Start Date: 09/16/2009 Start Qty: 1.00  
Required Date: 09/30/2009 Req'd Qty: 1.00

Cust Item ID:

Customer:

Reference:

Approvals: Process Plan: Date: Tooling: Date:  
QC: Date: SPC (Y/N): Date:

Run Start

Stop

Sequence ID/  
Work Center ID

Operation  
Description

Set Up/  
Run Hours

Draw  
Number

Draw  
Rev.

Plan  
Code

Accept  
Qty

Reject  
Qty

Reject  
Number

Insp.  
Stamp

240

QC5- Inspect part completeness to step on W/O

0.00

2) S 09/10/09

0.00

QC

Memo

Inspect Aft Cap, Fwd Step and Wing Walk of work to Current Step Inspect for  
Foreign objects per QSI 024

Quality Control

250

Packaging

0.00

Packaging

Memo

Identify and pack for shipping as per PPPD209-669-043

Location:

PPP Rev: PPP 52145

260

QC21- Final Inspection - Work Order Release

0.00

QC

Memo

0.00

Quality Control

09/10/09 (1)

09/10/09  
MF 0910-06

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

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**Comments:**

**Required Qty: 1.00**

163

BE 09/09/23

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

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Work Order ID: 52112

Parent Item: D209-669-043RevB

Parent Item Name: Replacement Skidtube

Start Date: 09/16/2009

Required Date: 09/30/2009

Comments:

Start Qty: 1.00

Required Qty: 1.00

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Remaining Qty To Pick	Qty Issued	Date Issued	Status
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D2855RevA

Manufactured

No

230

Each

15.0000

2.0000



Cap

Warehouse

Loc Qty

Loc Code

Location

Main Warehouse

FP6

15

50513

15

AN3-5A

Purchased

No

230

Each

2,461.000

4.0000



Bolt

Warehouse

Loc Qty

Loc Code

Location

Main Warehouse

ST

2461

100188

192

105057

2243

15205

26

x2 MD 09/10/01

x4 MD 09/10/01

W/O:		WORK ORDER CHANGES					
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Comments:

Start Qty: 1.00

Required Qty: 1.00

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Remaining Qty To Pick	Qty Issued	Date Issued	Status
AN960JD10L 		Purchased	No			230	Each	6,485.000	4.0000			
Washer												

Warehouse Loc Qty Loc Code

Location

Main Warehouse

ST	6485
101291	16
104885	153
105793	236
<u>109632</u>	1080
110985	5000

X4 MO 09/10/01

ALS7-1032-130

Purchased

No

230

Each

3,348.000 44.0000



Insert

Warehouse Loc Qty Loc Code

Location

Main Warehouse

ST	3348
105855	16
108606	52
111529	1488
<u>111779</u>	1792

X4 MO 09/10/01

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Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Remaining Qty To Pick	Qty Issued	Date Issued	Status
AN3C4A  BOLT		Purchased	No			230	Each	400.0000	44.0000			

WarehouseLoc QtyLoc CodeLocation

Main Warehouse

ST

400

112082

14

112314

140

112612

246

x44 MD 09/10/09

AN960C10L



washer

Purchased

No

230

Each

6,964.000

44.0000

WarehouseLoc QtyLoc CodeLocation

OFFSHORE

FG

100

103585

100

Main Warehouse

ST

6864

112116

1864

112612

5000

x44 MD 09/10/09

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Shop Packet Print

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W/O:		WORK ORDER CHANGES					
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Parent Item Name: Replacement Skidtube

Comments:

Start Date: 09/16/2009

Required Date: 09/30/2009

Start Qty: 1.00

Required Qty: 1.00

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Remaining Qty To Pick	Qty Issued	Date Issued	Status
D2594-3RevC		Manufactured	No			230	Each	864.0000	14.0000			
O-Ring, 205 Skidtube												

Warehouse                      Loc Qty                      Loc Code  
Location

Main Warehouse

FP

500

51613

500

Main Warehouse

ST

364

27168

44

29908

320

D2594-1RevC

Manufactured

No

230

Each

1,121.000

14.0000



Plug, 205 Skidtube

Warehouse                      Loc Qty                      Loc Code  
Location

Main Warehouse

ST

1121

42221

16

42807

92

43884

3

46435

2

47251

83

51527

100

51757

825

September 16, 2009 12:47:48 PM

Shop Packet Print

Page 5

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

# Picklist Print

September 16, 2009 12:47:48 PM

Work Order ID: 52112

Parent Item: D209-669-043RevB

Parent Item Name: Replacement Skidtube


Start Date: 09/16/2009

Required Date: 09/30/2009

Comments:

Start Qty: 1.00

Required Qty: 1.00

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Remaining Qty To Pick	Qty Issued	Date Issued	Status
D3564-9RevD		Manufactured	No			230	Each	45.0000	1.0000			
												
Wearshoe												

Warehouse Loc Qty Loc Code

Location

Main Warehouse

FP19

40

51675

40

Main Warehouse

ST

5

44659

1

45825

1

51258

3

D3564-11RevD

Manufactured

No

230

Each

15.0000

1.0000



Wearshoe

Warehouse Loc Qty Loc Code

Location

Main Warehouse

FP

13

51256

13

Main Warehouse

ST

2

45823

1

50112

1

September 16, 2009 12:47:48 PM

Shop Packet Print

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
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			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

# Picklist Print

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September 16, 2009 12:47:48 PM

Work Order ID: 52112



Parent Item: D209-669-043RevB



Parent Item Name: Replacement Skidtube

Start Date: 09/16/2009

Required Date: 09/30/2009

Comments:

Start Qty: 1.00

Required Qty: 1.00

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Remaining Qty To Pick	Qty Issued	Date Issued	Status
D3564-5RevD		Manufactured	No			230	Each	47.0000	1.0000			

Wearshoe

<u>Warehouse</u>	<u>Loc Qty</u>	<u>Loc Code</u>
<u>Location</u>		
OFFSHORE		
FG	2	
34806	2	
Main Warehouse		
FP19	43	
51257	2	
51655	41	
Main Warehouse		
ST	2	
45824	1	
47433	1	

X1

MP 09/10/01

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Page 7

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
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			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries



# Picklist Print

Page 8

September 16, 2009 12:47:48 PM

Work Order ID: 52112



Parent Item: D209-669-043RevB



Parent Item Name: Replacement Skidtube

Start Date: 09/16/2009

Required Date: 09/30/2009

Comments:

Start Qty: 1.00

Required Qty: 1.00

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Remaining Qty To Pick	Qty Issued	Date Issued	Status
D3566-IRevC		Manufactured	No			230	Each	49.0000	2.0000			



\*Gasket



Warehouse

Loc Qty

Loc Code

Location

Main Warehouse

52313

x2

MO 09/10/09

FP

39

51612

23

51912

16

Main Warehouse

ST

10

46349

1

47434

2

51218

1

51259

6

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Shop Packet Print

Page 8

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

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**NOTE:** Date & initial all entries

# Picklist Print

September 16, 2009 12:47:48 PM

Work Order ID: 52112



Parent Item: D209-669-043RevB



Parent Item Name: Replacement Skidtube

Start Date: 09/16/2009

Required Date: 09/30/2009

Comments:

Start Qty: 1.00

Required Qty: 1.00

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Remaining Qty To Pick	Qty Issued	Date Issued	Status
D3566-5RevC		Manufactured	No			230	Each	55.0000	1.0000			
Gasket												

<u>Warehouse</u>	<u>Loc Qty</u>	<u>Loc Code</u>
<u>Location</u>		
Main Warehouse		
FP	12	
51929	12	
Main Warehouse		
FP19	36	
51669	36	
Main Warehouse		
ST	7	
36113	1	
46186	1	
47318	1	
51260	4	

21 MD 09/10/01

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

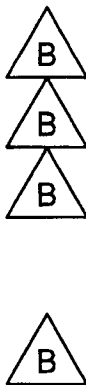
Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

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			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

#52112



QTY -041	QTY -043	Part Number	Description
X		D2906-041	SKIDTUBE ASSEMBLY
	X	D2906-043	SKIDTUBE ASSEMBLY
1	1	D2500-1-190	EXTRUSION
22	19	D2579	CROSS BOLT SPACER
12	14	D2594-1	PLUG
12	14	D2594-3	O-RING
2	2	D2855	AFT CAP
1		D2926-1	WEB
	1	D2926-3	WEB
1	1	D3564-9	WEARSHOE (REPLACES D2577-1)
1	1	D3564-11	WEARSHOE (REPLACES D2577-3)
1	1	D3564-5	WEARSHOE (REPLACES D2577-5)
1		D3564-15	WEARSHOE
2	2	D3566-1	GASKET
1	1	D3566-5	GASKET
1		D3566-15	GASKET
50	44	ALS7-1032-130 or AKS7-1032-130 or AKS4-1032-130 or ALS4-1032-130	INSERT
50	44	AN3C4A	BOLT
4	4	AN3-5A	BOLT
50	44	AN960C10L	WASHER
4	4	AN960JD10L	WASHER

#### GENERAL NOTES:

- 1) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED.
- 2) LENGTH OF D2500-1 EXTRUSION BEFORE BENDING = 190 INCHES.
- 3) INSERT D2926-1/-3 WEB TO LOCATION SHOWN OFF AFT END OF SKIDTUBE AND BOND WEB INTO OUTER TUBE WITH NON-STRUCTURAL SIKAFLEX-241/291 ADHESIVE PER DART QSI 015 BEFORE BENDING. ENSURE HOLES LINE-UP.
- 4) BEND AS A SMOOTH RADIUS STARTING WITH A MAXIMUM CENTERLINE RADIUS OF 60 AND ENDING WITH A MINIMUM RADIUS OF 30. A MAXIMUM REDUCTION OF 0.200 IN DIAMETER IS ALLOWABLE IN THE BENT PORTION OF THE TUBE.
- 5) BEND AS A SMOOTH RADIUS STARTING WITH A MAXIMUM CENTERLINE RADIUS OF 60 AND ENDING WITH A MINIMUM RADIUS OF 30. A MAXIMUM REDUCTION OF 0.200 IN DIAMETER IS ALLOWABLE IN THE BENT PORTION OF THE TUBE.
- 6) USE DART DRILL TEMPLATE DT2906-041T1 (D2906-041) OR DT2906-043T1 (D2906-043) TO LOCATE AND DRILL Ø0.297 HOLES FOR WEARSHOE INSERTS. INSTALL ALS7-1032-130 PER SECTION C-C AFTER FINISH. INSTALL AN3C4A BOLTS AND AN960C10L WASHERS WITH SIKAFLEX-241/291.
- 7) WELDING TO BE DONE PER DART QSI 004.
- 8) FINISH:  
ACID ETCH, ALODINE PER DART QSI 005 4.1 PRIOR TO INSERTING D2926-1/-3 WEB. POWDER COAT ASSEMBLY WHITE (REF 4.3.5.1) PER DART QSI 005 4.3  
BLACK ANTI-SKID PAINT AS INDICATED PER DART QSI 005 4.4
- 9) INSERT D2594-1 PLUG C/W D2594-3 O-RING IN HOLES MARKED 'P' (BOTH SIDES OF TUBE) AFTER FINISH (12 PLACES).
- 10) ALL DIMENSIONS ARE IN INCHES.

**RELEASED**

07.09.04

B	UPDATE DRAWING FORMAT; RE-ORGANIZE; ADD STAINLESS STEEL WEARPLATES AND GASKETS CHANGE WEARPLATE HARDWARE TO SS; PG 1: ADD NOTE 10; PG 2 C7: REMOVE AFT Ø0.640 HOLE FROM -041; PG 3 C3: CORRECTED -043 CAP P/N; PG 3 D7: 38 PLACES WAS 44 PLACES;	CB	07.08.21
A	NEW ISSUE	CP	04.06.22
REV.	DESCRIPTION	BY	DATE
DESIGN	92	<b>DART AEROSPACE LTD</b> HAWKESBURY, ONTARIO, CANADA	
DRAWN	C.B.		
CHECKED	PH	DRAWING NO.	REV. B
MFG. APPR.	21	D2906	SHEET 1 OF 3
APPROVED	10	TITLE	SCALE
DE APPR.	10	AH-1 (209) SKIDTUBE ASSEMBLY	NTS
DATE	07.08.21	COPYRIGHT © 2004 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.	

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

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			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries



### **D2906-041 BENDING AND CUTTING DETAIL**



## D2906-041 ASSEMBLY DETAIL



DESIGN	<i>Q</i>	<b>DART AEROSPACE LTD</b>	
DRAWN	<i>C.B.</i>	<b>HAWKESBURY, ONTARIO, CANADA</b>	
CHECKED	<i>PH</i>	DRAWING NO.	REV. B
MFG. APPR.	<i>21</i>	D2906	SHEET 2 OF 3
APPROVED	<i>AP</i>	TITLE	SCALE
DE APPR.	<i>[Signature]</i>	AH-1 (209) SKIDTUBE ASSEMBLY	1:24
DATE	07.08.21	COPYRIGHT © 2004 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS BECOMATION THAT IT IS NOT TO BE USED FOR ANY PURPOSE, OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.	

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

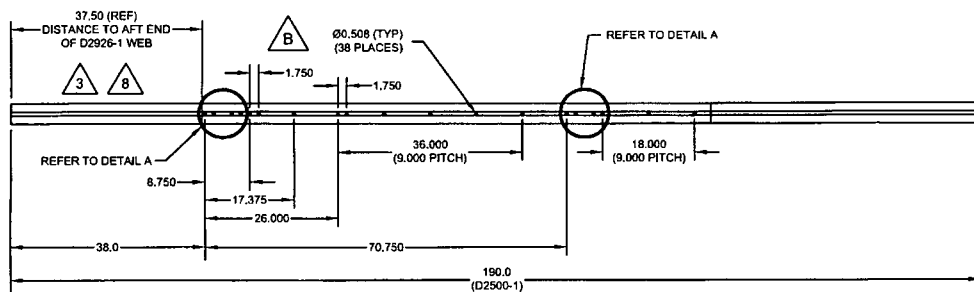
Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

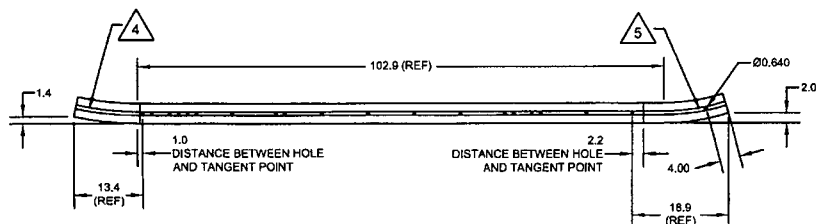
**NOTE:** Date & initial all entries



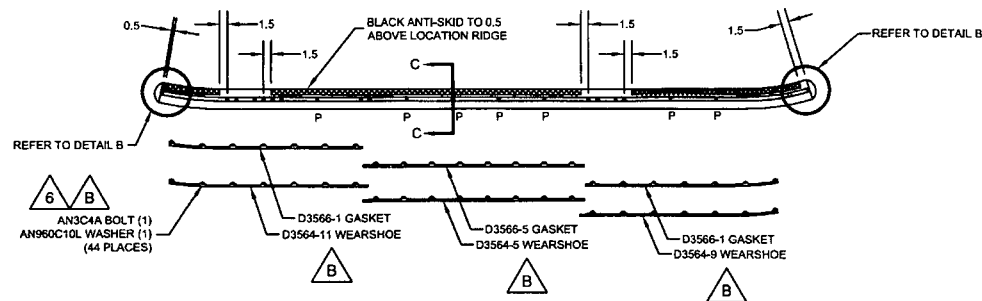
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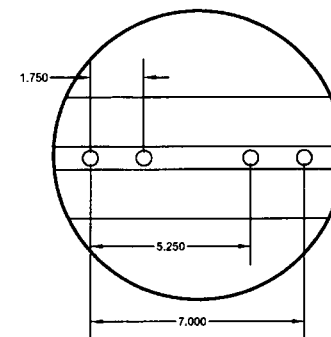
**D2906-3 DRILLING DETAIL**



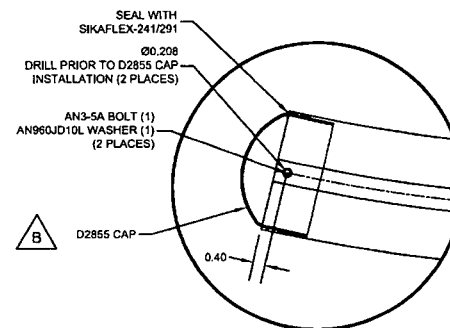
**D2906-043 BENDING AND CUTTING DETAIL**



**D2906-043 ASSEMBLY DETAIL**

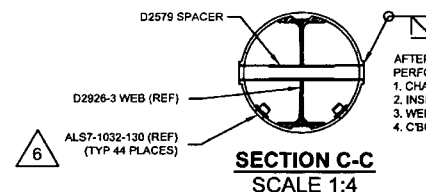


**DETAIL A  
SCALE 1:4**



**DETAIL B  
SCALE 1:4**

**RELEASED**  
07.09.04



AFTER DRILLING AND BENDING ASSEMBLY  
PERFORM THE FOLLOWING FOR Ø0.508 HOLES ONLY:  
1. CHAMFER HOLE 0.050 X 45°  
2. INSERT D2579 SPACER (22 PLACES)  
3. WELD INTO PLACE AND GRIND FLUSH  
4. C-BORE D2579 SPACER TO Ø0.437 X 1.00 DEEP

DESIGN	99	<b>DART AEROSPACE LTD</b>	
DRAWN	CB	HAWKESBURY, ONTARIO, CANADA	
CHECKED	PH	DRAWING NO. D2906	REV. B
MFG. APPR.	21		SHEET 3 OF 3
APPROVED	10	TITLE	SCALE
DE APPR.	11	AH-1 (209) SKIDTUBE ASSEMBLY	1:24
DATE	07.08.21	<small>COPYRIGHT © 2004 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.</small>	

8 7 6 5 4 3 2 1

W/O:		WORK ORDER CHANGES					
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Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

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			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

NO. 208

**AWS D17.1.2001  
QUALIFICATION TEST RECORD**

Name: Barclay Elliott  
Job number: 52165  
Part number: 1209-669-043  
Description: 209 Skid tube  
Welding Process: Tig[☒] Mig[ ]  
Base material: Alum  
Current: AC[☒] DC[ ]

**TEST REQUIREMENTS AND RESULTS**

Visual:

pass[☒] fail[ ]

Penetration:

pass[☒] fail[ ]

**UNACCEPTABLE**

Cracks:

pass[☒] fail[ ]

Undercut:

pass[☒] fail[ ]

Pin holes:

pass[☒] fail[ ]

Overlap (cold lap)

pass[☒] fail[ ]

Porosity (surface):

pass[☒] fail[ ]

Coloration:

pass[☒] fail[ ]

Qualifier David Daniel Date of Test Coupon 09/09/23  
Welder Barclay Elliott Date of Test Coupon 09/09/23

The above named individual is qualified in accordance with AWS D17.1.2001 to weld